

Re-numbered Claims

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Listing of Claims

Please amend the claims by replacing all prior versions of the claims with the following listing of claims:

1. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) a cap-labeled mRNA substrate.
- ~~6~~
2. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.
- ~~7~~
3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ wherein said HeLa cell cytoplasmic extract is prepared by dialysis of said extract containing 10% glycerol.
4. (cancelled)
- ~~8~~
~~5~~ 6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ wherein said S100 cell cytoplasmic extract comprises a 100,000 x g, 1 hour supernatant from a HeLa cell lysate.
- ~~2~~
~~6~~ 6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said methylated cap analog is ^{7me}GpppG or ^{7me}GTP.
- 7 - 8. (cancelled)
- ~~3~~
~~9~~ 9. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

~~4~~
~~10.~~ (currently amended) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

~~9~~
~~11.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate comprises poly(A) or at least one RNA element.

~~13~~
~~12.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~11~~⁹ wherein said RNA element is an AU-rich element.

~~10~~
~~13.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~11~~⁹ wherein said RNA element is a pyrimidine-rich element.

14 - 16. (cancelled)

~~16~~
~~17.~~ (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
a) a polysome-free HeLa cell cytoplasmic extract;
b) a methylated cap analog; and
c) cap-labeled mRNA substrate.

18. (cancelled)

~~17~~
~~19.~~ (previously presented) The kit of claim ~~17~~¹⁶ wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

¹⁸
~~20.~~ (currently amended) The kit of claim ¹⁶~~17~~ wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, ~~[[or]]~~ a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

21 - 26. (cancelled)

⁵
~~27.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 further comprising means for sequestering proteins that bind to poly(A).

¹¹
~~28.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ⁹~~11~~ further comprising means for stimulating decapping of the cap-labeled mRNA substrate wherein the cap-labeled mRNA substrate comprises poly(A).

¹²
~~29.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ⁹~~11~~ further comprising a cold poly(A) competitor RNA.

¹⁴
~~30.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ¹³~~12~~ further comprising means for reducing decapping of the cap-labeled mRNA substrate.

¹⁵
~~31.~~ (currently amended) The mammalian *in vitro* mRNA decapping system of claim ¹³~~12~~ further comprising an AU-rich element competitor RNA.

²⁰
~~32.~~ (previously presented) The kit of claim ¹⁶~~17~~ wherein the cap-labeled mRNA substrate comprises poly(A).

²¹
~~33.~~ (previously presented) The kit of claim ²⁰~~32~~ further comprising means for stimulating decapping the cap labeled mRNA substrate.

²²
~~24~~. (previously presented) The kit of claim ²⁰~~22~~ further comprising a cold poly(A) competitor RNA.

²³
~~25~~. (previously presented) The kit of claim ¹⁶~~17~~ wherein the cap-labeled mRNA substrate comprises an RNA element.

²⁴
~~26~~. (previously presented) The kit of claim ²³~~25~~ wherein the RNA element is an AU-rich element.

²⁵
~~27~~. (currently amended) The kit of claim ²⁴~~26~~ furthering further comprising means for reducing decapping the cap-labeled mRNA substrate.

²⁶
~~28~~. (previously presented) The kit of claim ²⁴~~26~~ further comprising an AU-rich element competitor RNA.

²⁷
~~29~~. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:

- a) a polysome-free HeLa cell cytoplasmic extract;
- b) a cap-labeled mRNA substrate; and
- c) means for decapping the cap-labeled mRNA substrate.

²⁹
~~30~~. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:

- a) a polysome-free HeLa cell cytoplasmic extract;
- b) a cap-labeled mRNA substrate; and
- c) means for decapping the cap-labeled mRNA substrate.

¹⁹
~~41~~. (previously presented) The kit of claim ¹⁶~~17~~ wherein the polysome-free HeLa cell cytoplasmic extract is HeLa S100 cell cytoplasmic extract.

²⁸
~~42~~. (previously presented) The kit of claim ²⁷~~29~~ wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.

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~~43~~
²⁰

(previously presented) The kit of claim ~~40~~²⁹ wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cytoplasmic extract.